Echelonment of Fires

- References
- Doctrine
- Considerations
- SAWE
- Live Fire

References

FM 6-20-1, TACTICS, TECHNIQUES, AND PROCEDURES FOR THE FIELD ARTILLERY CANNON BATTALION, 29 NOV 1990

FM 6-30, TACTICS, TECHNIQUES, AND PROCEDURES FOR OBSERVED FIRE, 16 JUL 1991

FM 6-40, TACTICS, TECHNIQUES, AND PROCEDURES FOR FIELD ARTILLERY MANUAL CANNON GUNNERY, 23 APR 1996

FM 6-20-40 Final Draft, 1 May 2000, TACTICS, TECHNIQUES, AND PROCEDURES FOR FIRE SUPPORT FOR BRIGADE OPERATIONS

Famous Alive Guy Quote

"We were being shot at…yet I could destroy the enemy without putting my men in a position where they could be killed…all I had to do was get on the radio and send the grid to the enemy's position."

--LTG George Crocker

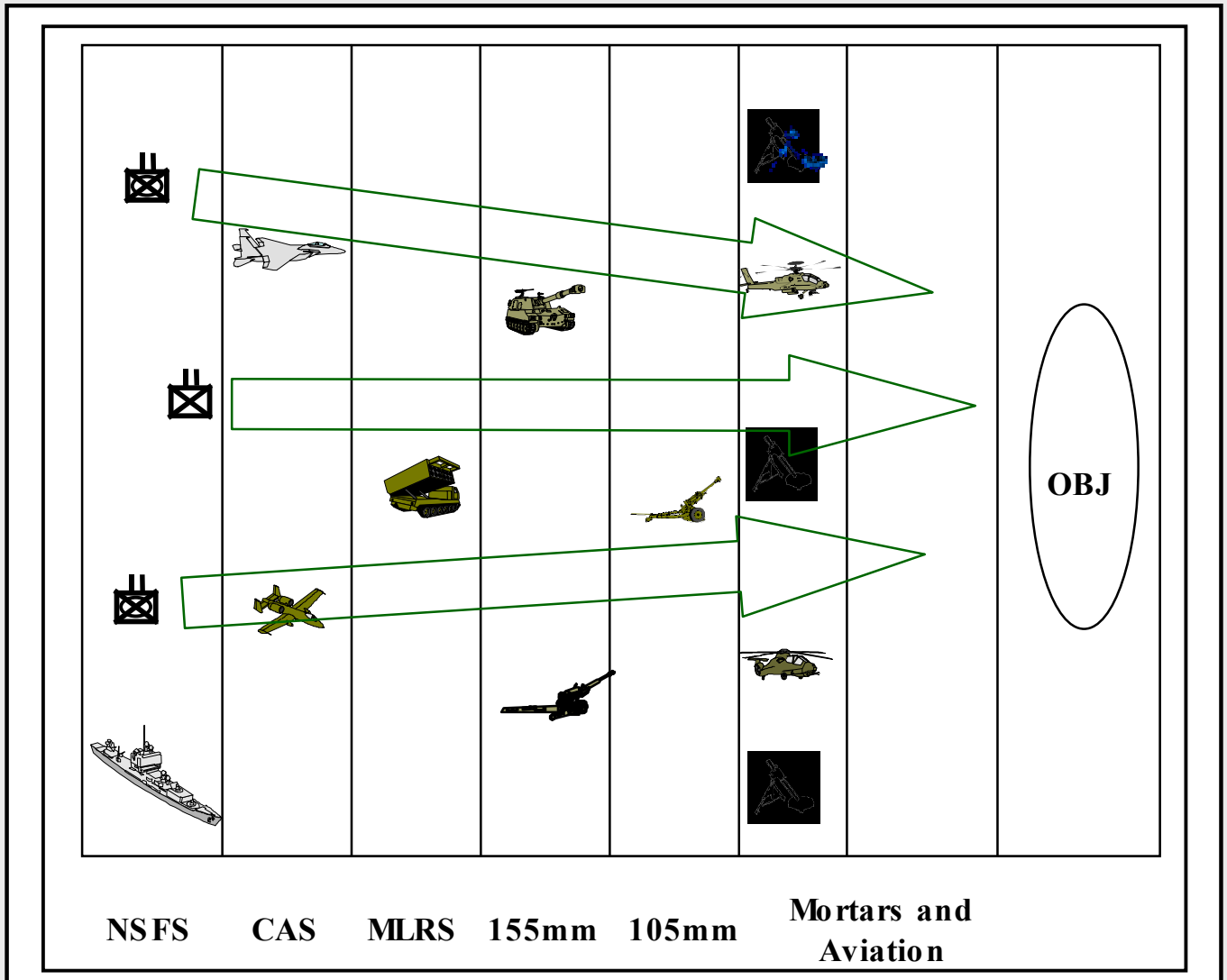
What is Echelonment of Fires???

Echelonment of fires is the execution of a schedule of fires fired from the highest caliber to the lowest caliber weapon, based on the risk estimate distances, as the maneuver force moves toward the objective.

Echelonment of fires:

- **Helps ensure ground forces are able to move to an objective without losing momentum**
- **Sets the conditions for the direct fire fight**
- **Executed when the maneuver commander wants preparation fires on the objective**

Concept



Terminology

Risk Estimate Distances: Established in combat--based on the range the weapon will be firing from and amount of risk (10% and .1% PI) the commander is willing to accept. (Joint Pub 3-09.3)

Probability of Incapacitation (PI) of .1%: The probability that a soldier standing in the open has less than or equal to one chance in one thousand of sustaining injuries requiring evacuation. (Joint Pub 3-09.3)

Danger Close: A command with in the call for fire from the observer to the delivery asset when the target being requested is within 600meters from friendly forces. (FM 6-30)

Considerations

The Maneuver Commander should consider:

- **Will the loss of surprise from the preparation be offset by the damage done to the enemy?**
- **Are there enough targets and means to warrant a preparation?**
- **Can the enemy recover before the preparation fires can be exploited?**

Nine Steps for Echeloning a Prep

1. Determine what indirect fire support assets are available (weapon and amount of rounds) for the prep (Mission Analysis)

   - Contact the BDE FSE to determine how many volleys of FA munitions (HE) have been allocated and how much HC smoke is available to support the TF

   - Determine where indirect fire assets will be positioned when prep is fired

   - Determine how much 81mm and 60mm mortar ammunition is available

Nine Steps for Echeloning a Prep

1 (Continued). Determine what indirect fire support assets are available (weapon and amount of rounds) for the prep (Mission Analysis)

- ***Consider consolidating company (60mm) mortars***
- ***Determine if naval surface fire support (NSFS) is available for the preparation--does the GT line support the prep***
- ***If CAS is required ensure Joint Tactical Air Request Form is submitted in enough time for the air tasking order cycle.***
- ***Consider dud rates of munitions.***

Nine Steps for Echeloning a Prep

2. Verify risk estimate distances and high payoff targets with the commander (COA development)

- Based on range of weapon and risk commander will accept
- Friendly forces outside .1% PI may still be subject to weapons fragments
- Commander's and FSO/FSNCOs/FOs must weigh the choice of ordnance and the accuracy and proficiency of the firing unit in relation to the risk of fratricide

Nine Steps for Echeloning a Prep

2 (Continued). Verify risk estimate distances and high payoff targets with the commander (COA development)

- ***The FSO must confirm with the commander the task of the prep-- (ie. Destroy enemy in two bunkers on north side of objective vicinity NV342187) . If a breach is expected, location and amount (time) of smoke needed.***

- ***If not satisfied with the effects that can be achieved with the assets available request more from BDE***

Risk Estimate Distances

RISK ESTIMATE DISTANCES

Warning: Risk Estimate Distances (REDs) are for combat use and are not minimum safe distances (MSDs) for peacetime livefire training.
Ref: *Joint TTPs for CAS* Joint Pub 3-09.3 1 Dec 95 Appendix G and *Risk Estimate Distances for Indirect Fires in Combat* FA Journal Mar-Apr 97.

Item/ System	Description	Risk Estimate Distances(meters)					
		10% PI			0.1 % PI		
		1/3	2/3	max range	1/3	2/3	max range
M224	60mm mortar	60	65	65	100	150	175
M29/ M29A	81mm mortar	75	80	80	165	185	230
M102/ M119	105mm howitzer	85	85	90	175	200	275
M109/ M198	155mm howitzer	100	100	125	200	280	450
M109/ M198	155mm DPICM	150	180	200	280	300	475
NSFS MK-45	5"/ 54 gun	210	225	250	450	450	600
2.75" FFAR	rockets	160			200		
AC-130	20/ 25/ 40mm cannons	35			125		
AC-130	105mm cannon	80			200		
M-4, M-112, SUU-23, M-61	20mm cannon	100			150		
GAU-8	30mm Gatling gun	100			150		
AGM-65	Maverick	25			100		
MK-82 LD/ LGB	500lb. bombs	250			425		
MK-83 LD/ HD/	1000lb. bombs	275			475		
LGB MK-84 LD/ HD	2000lb. bombs	325			500		

figure 3

Nine Steps for Echeloning a Prep

3. Plan targets (COA Development and WARGAME)

- Timely and accurate intelligence is critical in this step. Through close coordination with the S2 and commander, analyze Situation Template (or known enemy locations) and scheme of maneuver to plan targets.

- Weapons and ammunitions must be planned to achieve the required effects on each type of target.

- Refine targets (AE5005 refined to AE5006)

Nine Steps for Echeloning a Prep

4. Determine what the rate of movement and route will be (WARGAME)

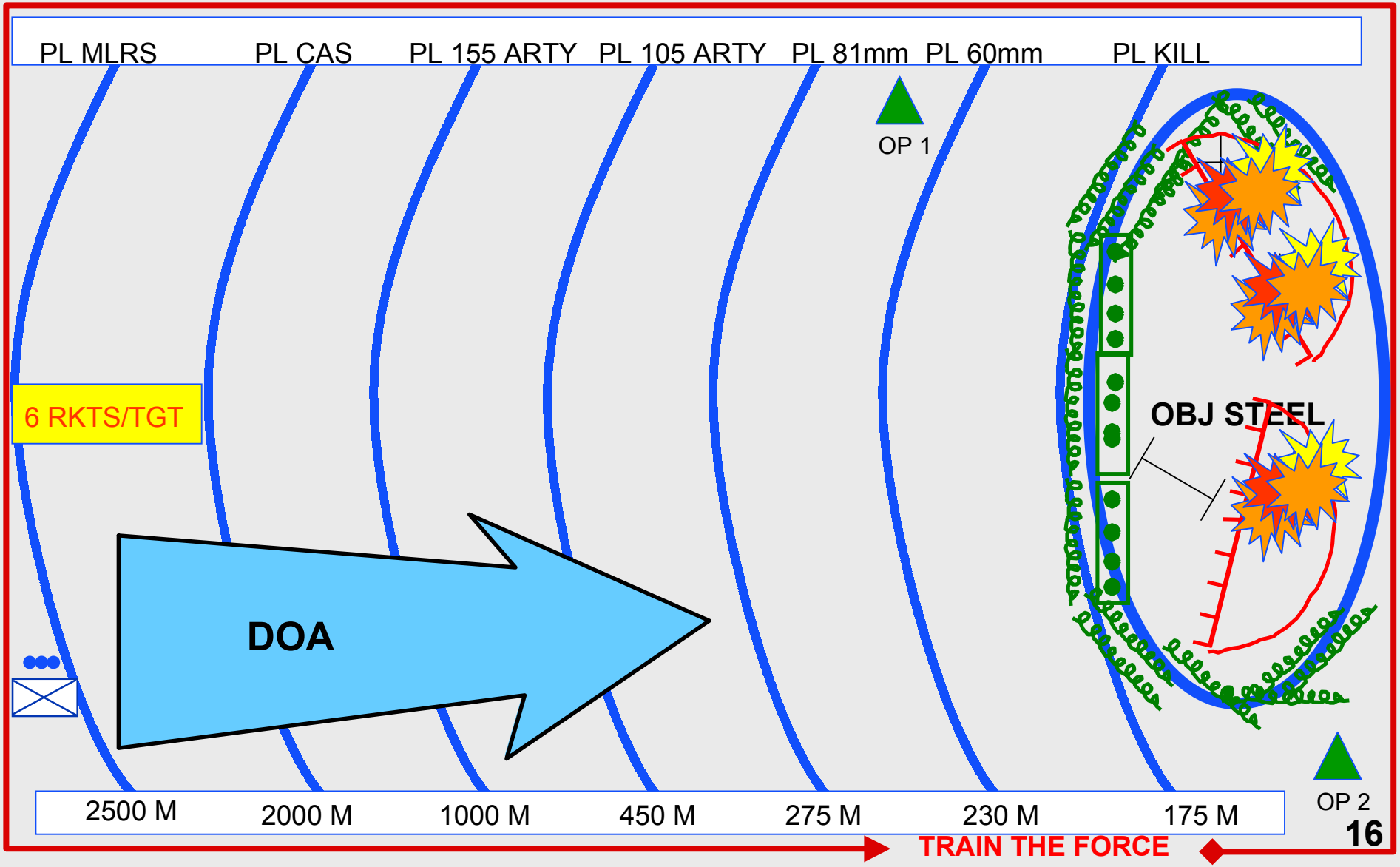
- Rate of movement based on situation, conditions and force assigned (assault or breach force)
  - 1.2 KMs/hour equals 20 meters per minute
  - 2 KMs/hour equals 33 meters per minute (3 minutes/100m)
  - Will assist in determining how long (how many rounds) each asset has to fire to support the scheme of maneuver
  - Way points can be planned in the PLGR for each phase line to determine when fires will be triggered

Nine Steps for Echeloning a Prep

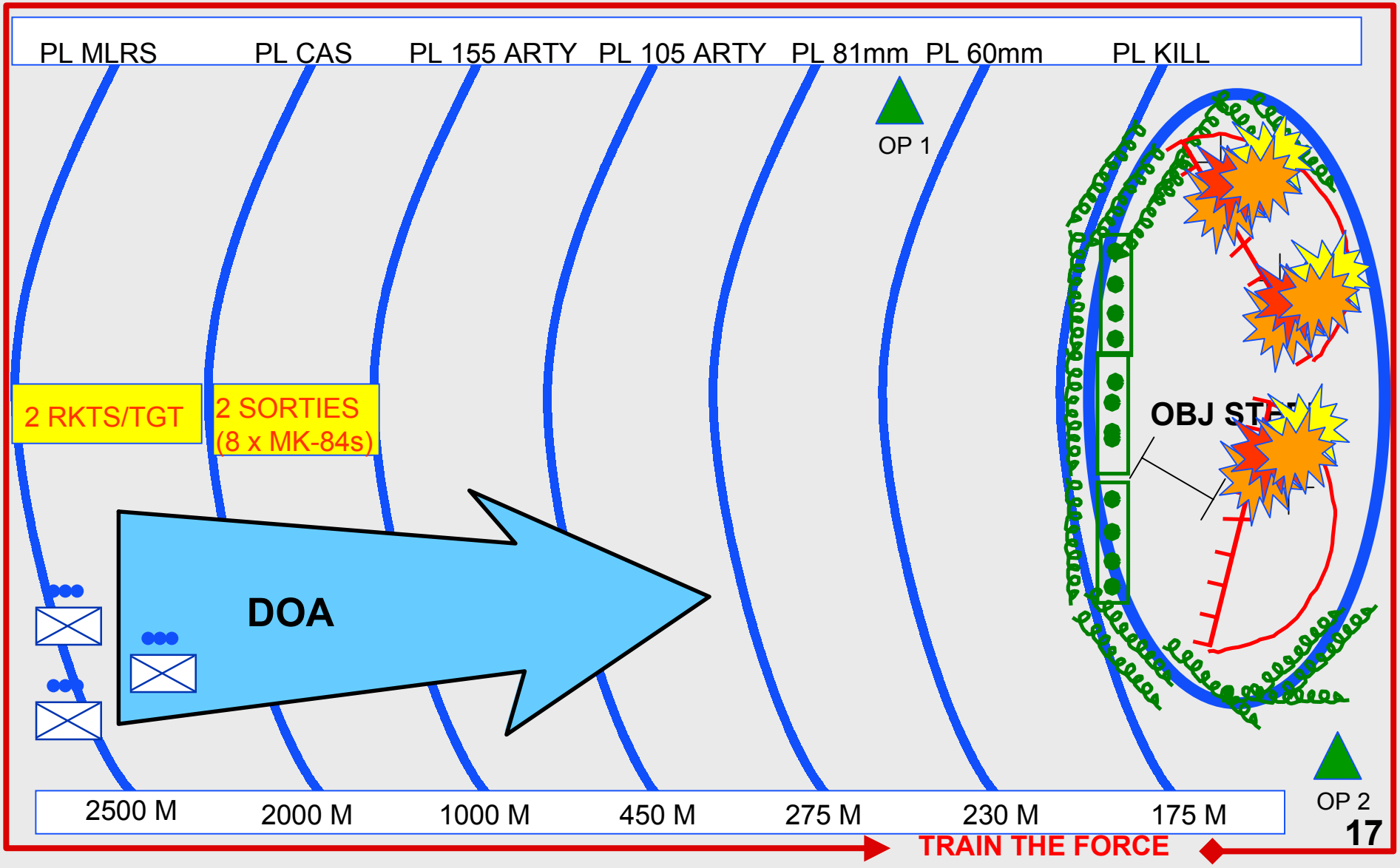
5. Develop the schedule of fires and decide how the preparation schedule will be controlled and initiated (WARGAME)

USE A SKETCH TO PLAN THE PREP

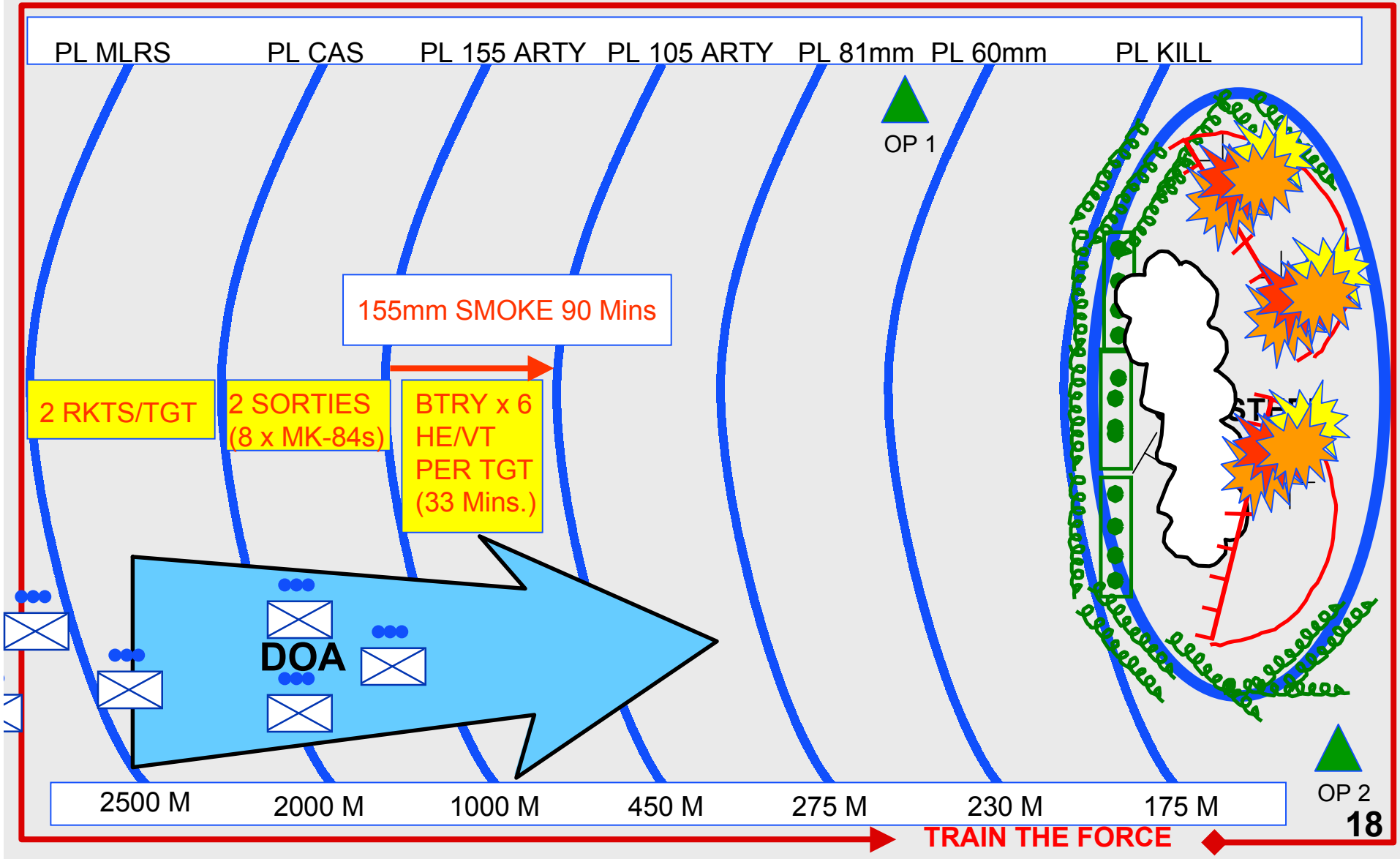
Example of Echeloning Fires



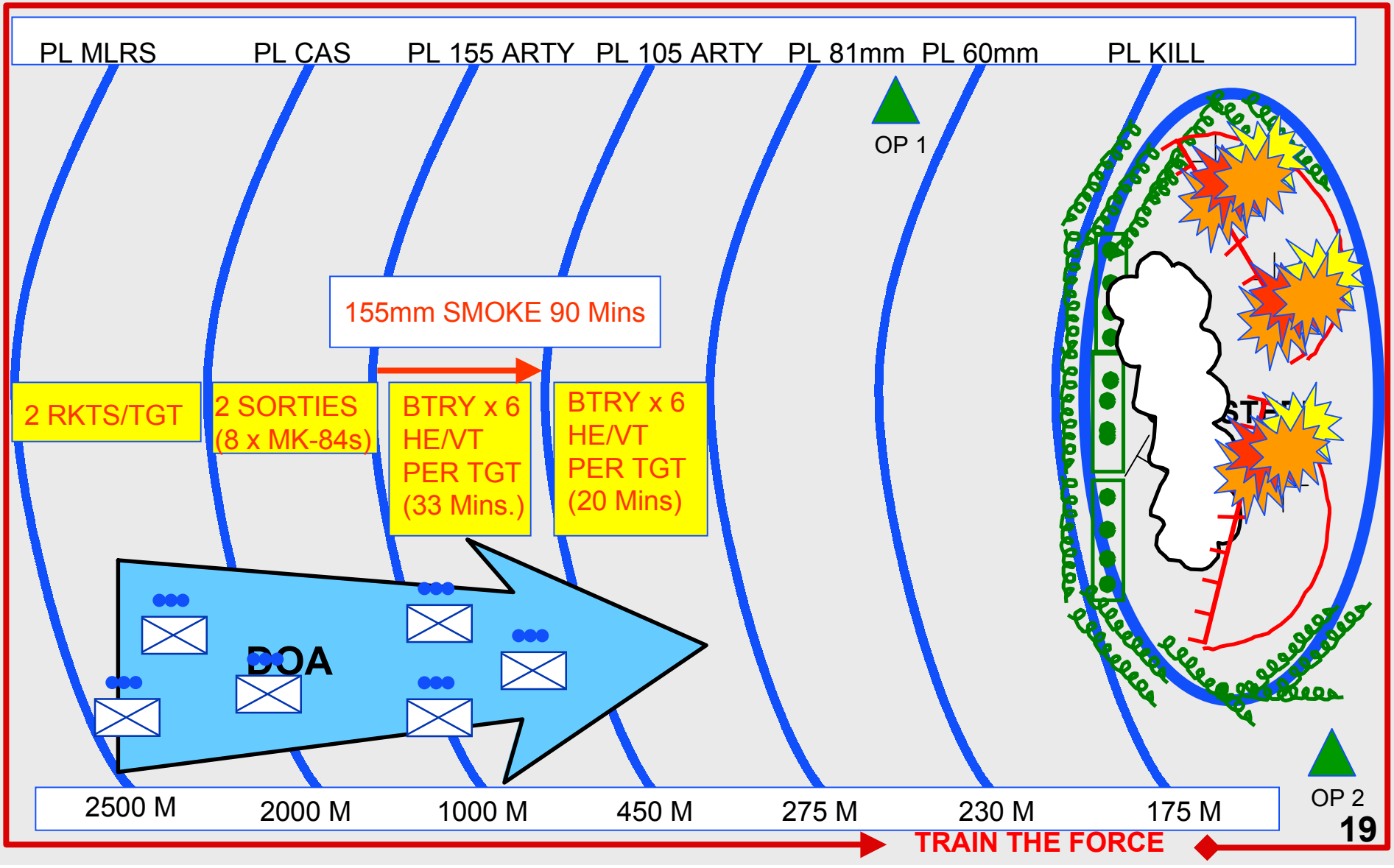
Example of Echeloning Fires



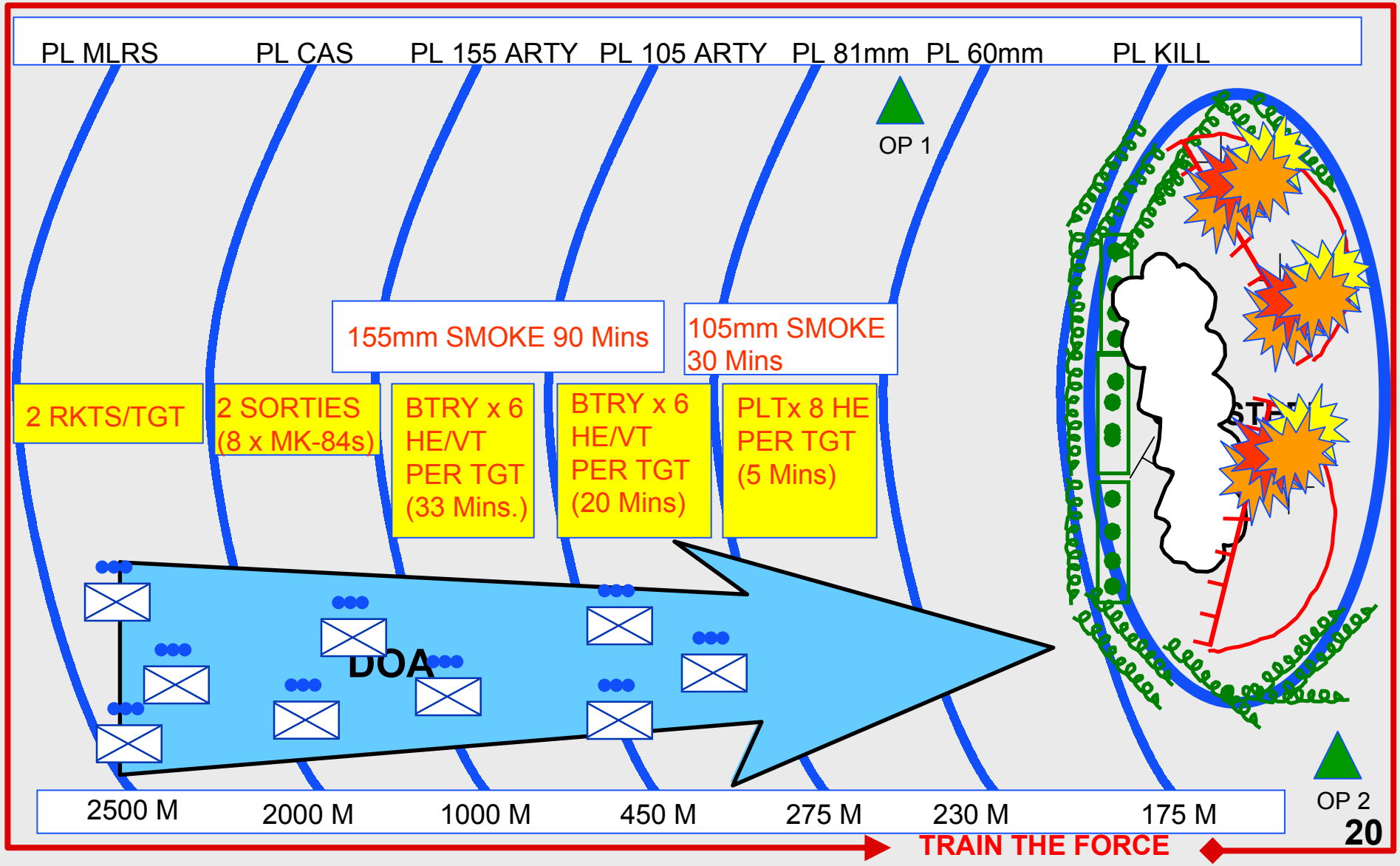
Example of Echeloning Fires



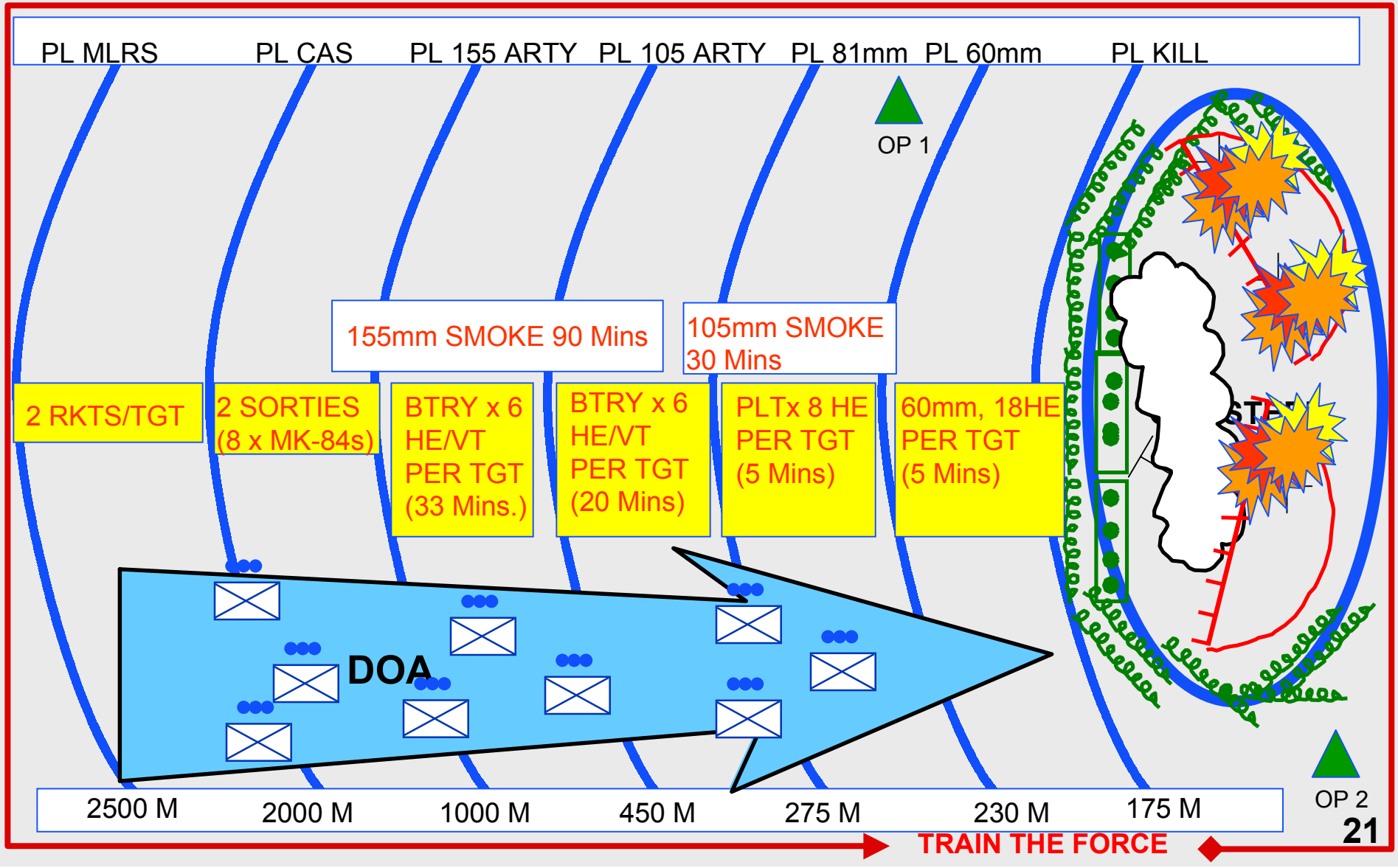
Example of Echeloning Fires



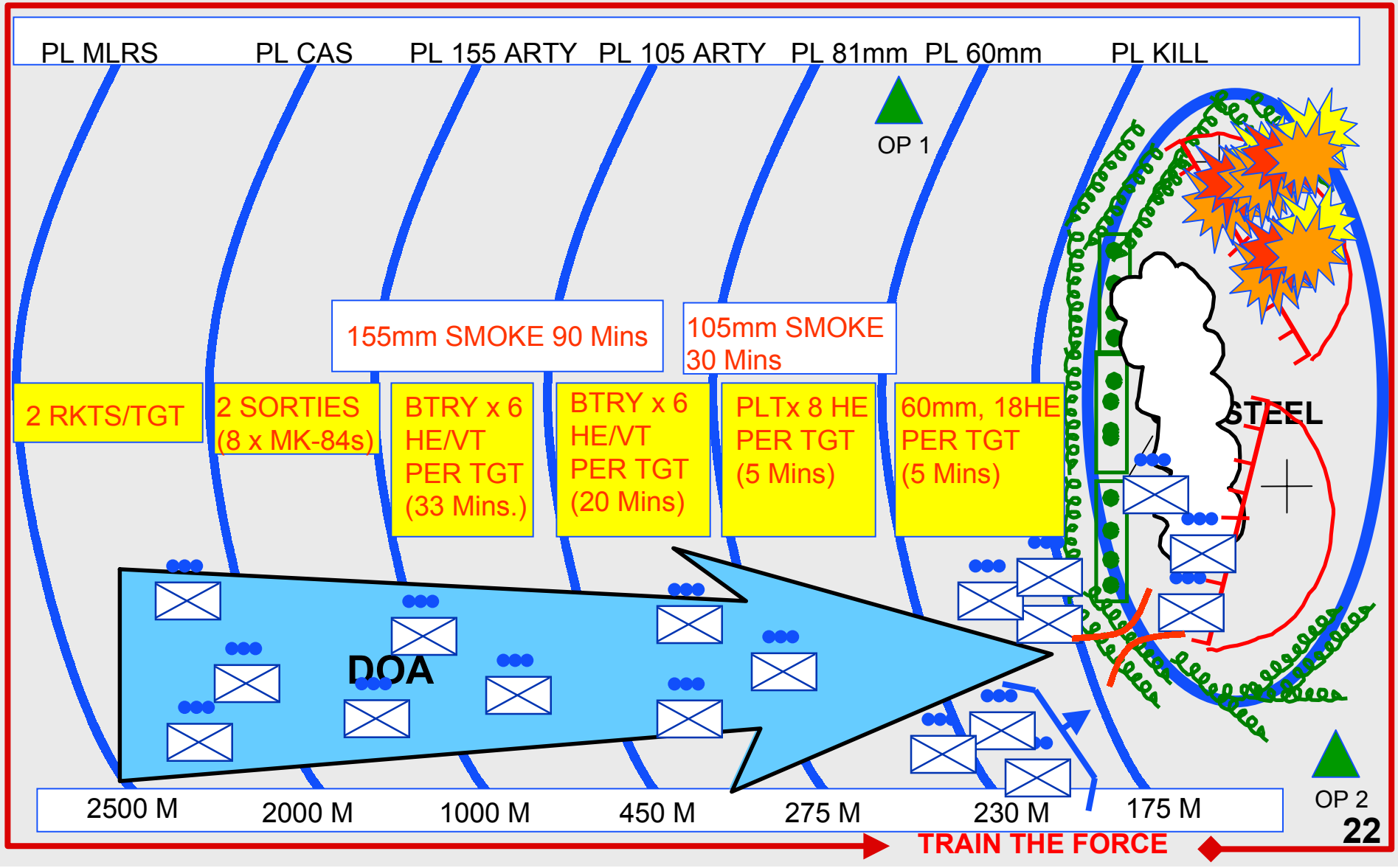
Example of Echeloning Fires



Example of Echeloning Fires



Example of Echeloning Fires



Nine Steps for Echeloning a Prep

6. Develop Communications Plan (WARGAME and Prep)

- *Primary/alternate observers to delivery assets (directly to mortars and FA, through TF FSE/ANGLICO to NSFS, through BALO to CAS)*
- *Ensure reliable and redundant communications are available*
- *Prepare--PCC, rehearse FM*

Nine Steps for Echeloning a Prep

7. Brief the plan/confirm the method with commander (COA Brief, OPORD Brief)

- *Conduct backbrief with the commander and S3 prior to completion of scheduling sheets*
- *Use sketch during OPORD brief--KISS*

8. Complete the scheduling work sheets (WARGAME, Refinements) and ensure all assets get a copy

Nine Steps for Echeloning a Prep

9. Rehearse and refine the plan

- BN FSO or FSNCO attends lead company's CAR to confirm and assist with the plan
- Conduct a separate fire support rehearsal prior to TF CAR and rehearse:
  - Triggers (PLs, H times), REDs, rates of movement, target numbers and locations, number and type of rounds, shift times, number of minutes of suppressive fires per asset, number of minutes of smoke, call signs, frequencies and graphics

Nine Steps for Echeloning a Prep

9 (Continued). Rehearse and refine the plan

- Company commanders include detailed target rehearsal as part of the the TF CAR (task, purpose, trigger for each asset, targets, and number and type of round for each asset, primary/alternate observers, and effects on the target)

- Timely and accurate target refinements are critical

Additional Considerations

- **SEE THE ENEMY:** Detailed enemy courses of action, reconnaissance, accurate reports and refinement of the targets is critical to success--plan a staff targeting meeting in the timeline prior to LD

- **SEE YOURSELF:** Positive situational awareness is essential to execute an echelonment of fires.
  - Lead platoons and companies must send up timely reports of their location
  - Redundant communications
  - Control measures
  - Observation plan
  - Time to adjust each asset and fire prep targets
  - Rate of movement
  - REHEARSE, REHEARSE, REHEARSE……

SAWE

- **Simulated Area Weapons Effects (SAWE):**
  - **IFCAS (Indirect Fires Casualty Assessment System)***
    - **A MLRS target covers a circular area with a 500 meter diameter**
    - **A 155mm DPICM/HE target covers a circular area with 300 meter diameter**
    - **120mm mortars cover a 250x195 meter box**
    - **105mm artillery covers a circular area with 250 meter diameter**
    - **81mm mortars cover a 200x155 meter box**

*IAW Revised SAWE MILES II BDA Tables, May 1996

SAWE vs. REDs

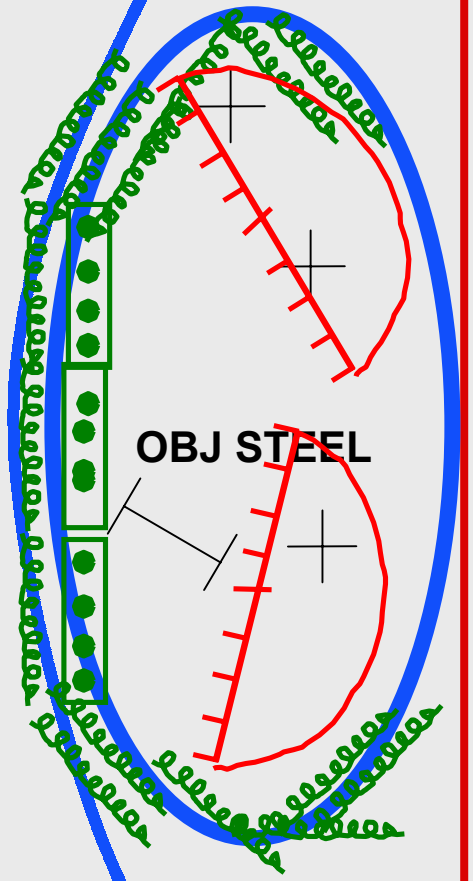
PL MLRS PL CAS PL 155 ARTY PL 105 ARTY PL 81mm PL 60mm M203

SAWE "SHOULD" ALLOW UNITS TO USE REDs

MLRS 500 Meter diameter circle

105mm 250 meter diameter circle

81mm 200 x 155 Meter box



2500 M 2000 M 1000 M 500 M 450 M 275 M 250M 200M 230 M 175 M

TRAIN THE FORCE

INDIRECT FIRE MSDs

ARTILLERY MINIMUM SAFE DISTANCES

	LOW ANGLE	HIGH ANGLE
105 MM	800M	800 M
155 MM	800M	1,100 M
CHG 3 GB/WB& RB)	1,100 M	1,300 M

MORTAR MINIMUM SAFE DISTANCES (no overhead fires)

60 MM 800 M
(300 M with registration or direct lay)
81 MM 800 M
(500 M with registration or direct lay)
107 MM 800 M
120 MM 800 M

*Illumination rounds: Range-to-fuze function must occur at least 500 meters from friendly units

MSDs vs. REDs

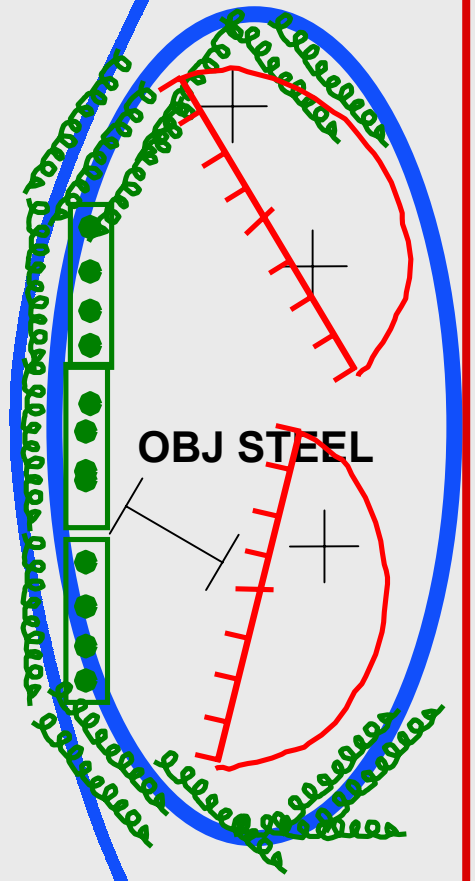
PL MLRS PL CAS PL 155 ARTY PL 105 ARTY PL 81mm PL 60mm M203

LIVE FIRE MSDs DO NOT ALLOW THE USE OF REDs

800Meter MSD (155mm, 120mm, 105mm, 81mm)

500Meter MSD for Registered 81mm

300 Meter MSD for Registered or Hand Held 60mm Mortars



2500 M 2000 M 1000 M 800 M 500 M 450 M 300 M 275 M 230 M 175 M

TRAIN THE FORCE

Questions